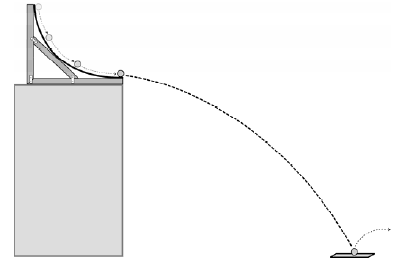
[](http://www.google.com/imgres?q=thelma+&+louise&hl=en&sa=X&qscrl=1&nord=1&rlz=1T4TSHB_enUS372US372&biw=1002&bih=518&tbm=isch&prmd=imvns&tbnid=FIEAXSEiSS190M:&imgrefurl=http://cinepad.com/reviews/thelma.htm&docid=Bw6ZX7nYPlYY3M&imgurl=http://cinepad.com/images/thelma.jpg&w=318&h=228&ei=2V4YT7DNIsO3tweXxvWcCw&zoom=1)

 In Hollywood movies, a classic way to end a car chase is to have a car drive off a cliff or into a canyon, with the hero jumping out of the car at the last minute to safety or the villain being destroyed along with the car. Movie directors need to know exactly where the car will land so that they can have cameras in place to capture the motions on film. They also need to know where the car will be as it falls from the edge of the cliff to the floor of the canyon below so that they can have cameras in place there, too. How can we model this situation? How can we harness technology to apply this model to pinpoint the specific location of a moving object at any time?

To answer these questions, we will simulate a car driving off a cliff by using a ball, ramp and cup.

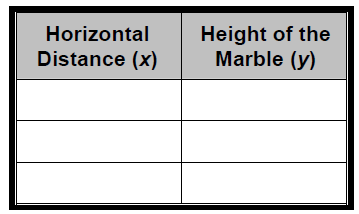
1. Set up the ramp on a desk. Roll the ball down the ramp and let it hit the floor to observe the motion of the marble.

2. Determine the placement of your x-axis and your y-axis. Where will the origin be?

3. In your coordinate system, what do x and y represent?

4. Consider the path of the marble. Based on your coordinate system, what is your y-intercept?\_\_\_\_\_ and what does it mean? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

5. Based on your coordinate system, what do(es) the x-intercept(s) represent? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

6. Roll the ball down the ramp and notice where it strikes the floor. Repeat at least 3 times to ensure more accurate results. What are the coordinates of your x-intercept?

7. You should have 2 points for your function now. Without moving the ramp, find a third point.

8. Record your 3 points (\_\_\_\_\_\_,\_\_\_\_\_\_\_),(\_\_\_\_\_\_,\_\_\_\_\_\_\_),(\_\_\_\_\_\_,\_\_\_\_\_\_\_). Now find a model and record it here: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

9. Test your model and tell what you did, what your results were and any adjustments you made.